



Danfoss ECdry Touch Kit Installation Guide

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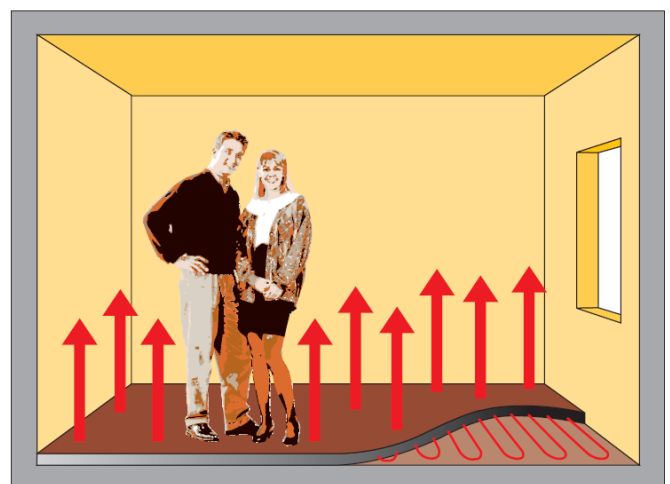
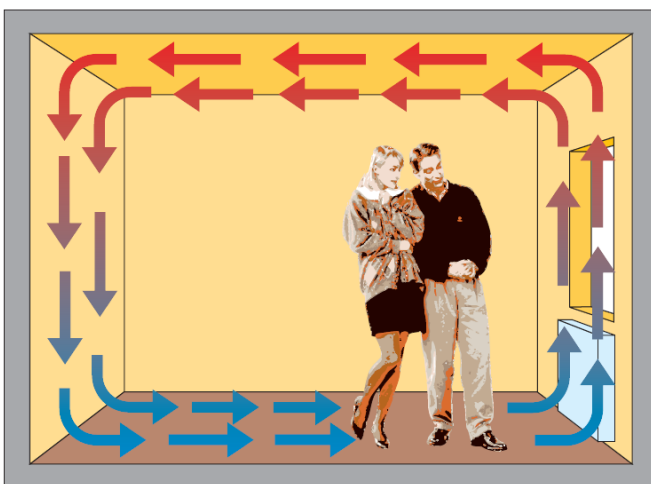
Danfoss ECdry Touch Kit



Congratulations with your new Danfoss floor heating system.

We are confident that you will be satisfied with your new system. Danfoss brings you optimum comfort with the luxury and comfort of a warm floor as well as a pleasant room temperature.

Floor heating is the most comfortable type of heating because it is based on the fact that warmth travels upwards; pleasant warmth for your feet, body and head.



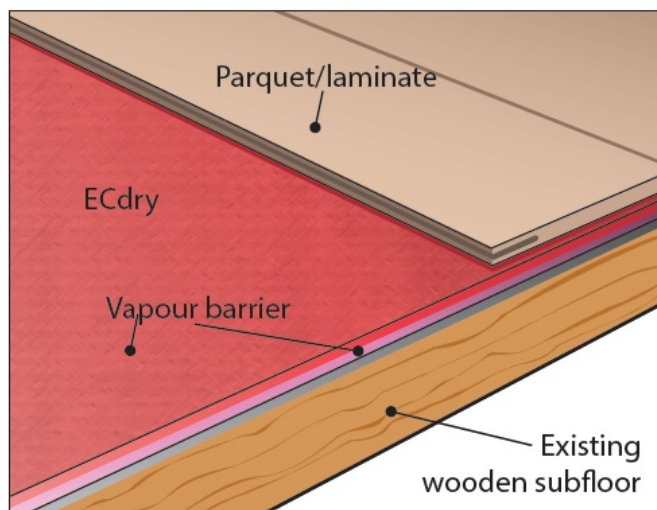
General information

The ECdry floor heating system consists of a foam/carpet heating element with heating mats inside. The system must always be controlled with a ECtemp, as it is an important part of the safety and overheating protection system.

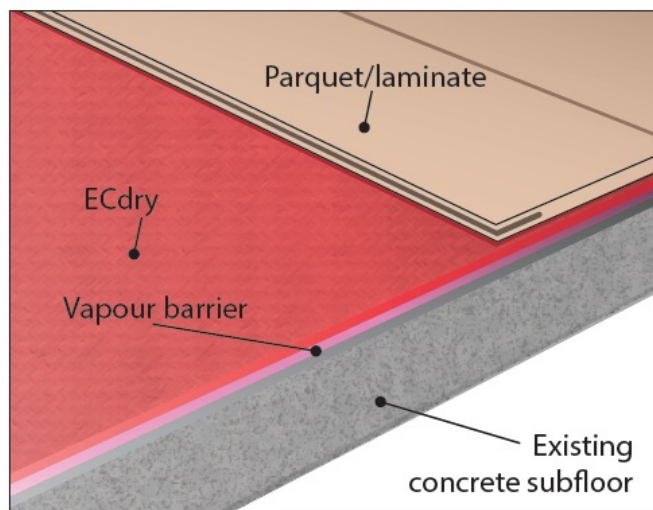
The ECdry floor heating system can be used under wooden floors such as parquet and laminate. Please check the specifications with your supplier of these products.

ECdry has been tested and approved with flooring materials with insulation values from 0,07 to 0,18 m² K/W. For best performance of the floor heating system, keep the insulation value from the ECdry heating unit to floor surface as low as possible.

The ECdry floor heating system has been developed to the dry application area for underfloor heating. It is applicable for wooden and concrete floor constructions with the two output ranges 55 W/m² and 100 W/m².



*Flooring
ECdry 55
Wooden floor construction*



*Flooring
ECdry 55 or 100
Concrete floor construction*

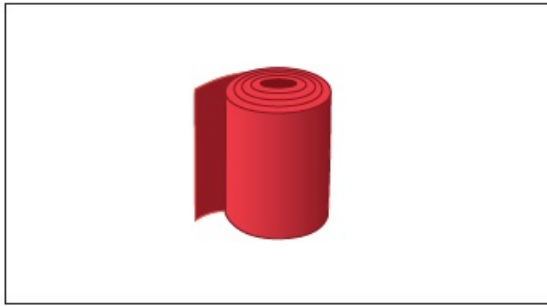
The maximum thermal resistance between the ECdry element and the room is 0,18 m² K/W as shown in the table below.

| Thermal resistance | Examples of Flooring | Density |
|-------------------------|--------------------------|---------------------------|
| 0,07 m ² K/W | 11 mm HDF based laminate | >800 kg/m ³ |
| 0,10 m ² K/W | 14 mm beech parquet | 650-800 kg/m ³ |
| 0,13 m ² K/W | 22 mm solid oak plank | >800 kg/m ³ |
| 0,18 m ² K/W | 22 mm solid fir planks | 450-650 kg/m ³ |

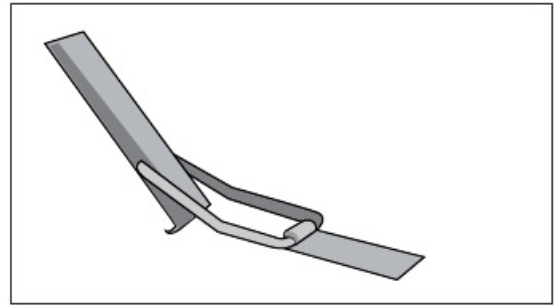
The ECdry floor heating system is for indoor applications in dry rooms only. As with any other underfloor heating system, it will be most effective if the underfloor is well insulated.

The following directions will guide you step-by-step through the installation process. Please read the directions and the safety precautions before you start the installation process.

Product overview



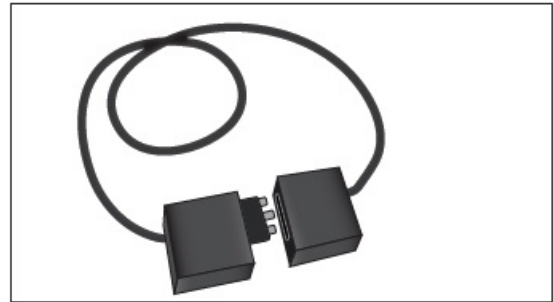
ECdry FM



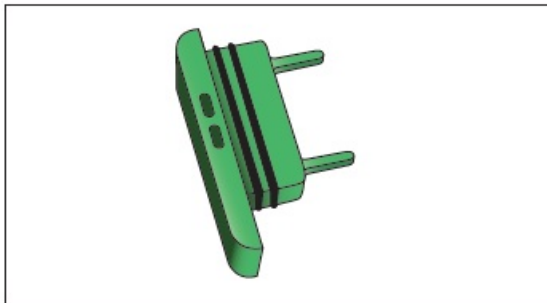
ECdry Connection Tool



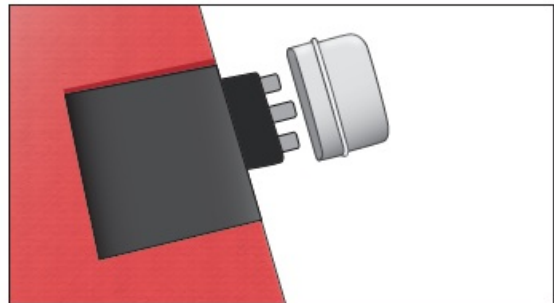
ECdry Tape



ECdry X



ECdry End Stop



ECdry Protection Cap

Products supplied for wooden floor constructions

| ECdry Name | Description |
|------------|-----------------------------------|
| ECdry 55 | ECdry Element, 1-5 m ² |

Products supplied for concrete floor constructions

| ECdry Name | Description |
|------------|-----------------------------------|
| ECdry 55 | ECdry Element, 1-5 m ² |

Or:

| | |
|-----------|-----------------------------------|
| ECdry 100 | ECdry Element, 1-5 m ² |
|-----------|-----------------------------------|

Accessories

| ECdry Name | Description |
|-----------------|--------------------------------------------------------|
| ECdry Touch Kit | ECdry Touch Kit: |
| | • ECtemp Touch Electronic Intelligent Timer Thermostat |
| | • ECtemp NTC Floor Sensor |
| | • ECdry Connection Tool |
| | • ECdry Supply cord 3 m |
| | • ECdry and ECtemp Instructions |
| | • ECdry Warning Label |
| ECdry X-25 | ECdry Extension Cord, 25 cm |
| ECdry X-100 | ECdry Extension Cord, 100 cm |
| ECdry X-200 | ECdry Extension Cord, 200 cm |
| ECdry FM-1 | ECdry Filler Material, 1 m ² |
| ECdry FM-2 | ECdry Filler Material, 2 m ² |
| ECdry FM-4 | ECdry Filler Material, 4 m ² |

Technical Details

Installation must be carried out in accordance with the national regulation and wiring rules for installation

| Technical details of ECdry | |
|---------------------------------|---------------------------------------------|
| Height | 8 mm |
| Mains voltage | 230 V (50 Hz) |
| Maximum Ampere per ECdry System | 10 A |
| IP rating for ECdry Element | IP X7 |
| Output | 55 W/m ² or 100 W/m ² |
| Sound reduction value | 17 dB |
| Insulation value μ | 8 W/m ² K |

Maximum heated surface per ECdry Touch Kit (Maximum current limit is 10 Ampere)

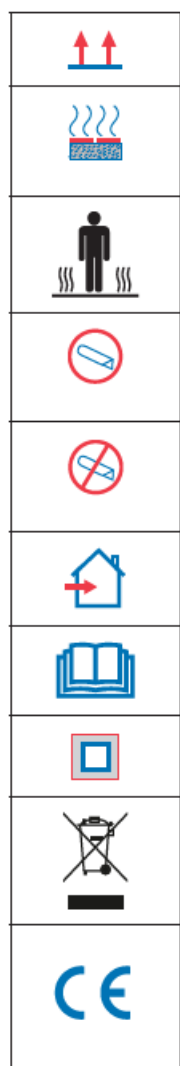
| Product | Max heated surface |
|-----------|--------------------|
| ECdry 55 | 42 m ² |
| ECdry 100 | 23 m ² |

For ECdry 55

| Floor area | Heated surface | Total power output | Ampere |
|------------------|--------------------|--------------------|--------|
| 1 m ² | 0,4 m ² | 22 Watt | 0,10 A |
| 2 m ² | 1,4 m ² | 77 Watt | 0,33 A |
| 3 m ² | 2,4 m ² | 132 Watt | 0,57 A |
| 4 m ² | 3,4 m ² | 187 Watt | 0,81 A |
| 5 m ² | 4,4 m ² | 242 Watt | 1,05 A |

For ECdry 100

| Floor area | Heated surface | Total power output | Ampere |
|------------------|--------------------|--------------------|--------|
| 1 m ² | 0,4 m ² | 40 Watt | 0,17 A |
| 2 m ² | 1,4 m ² | 140 Watt | 0,61 A |
| 3 m ² | 2,4 m ² | 240 Watt | 1,04 A |
| 4 m ² | 3,4 m ² | 340 Watt | 1,48 A |
| 5 m ² | 4,4 m ² | 440 Watt | 1,91 A |



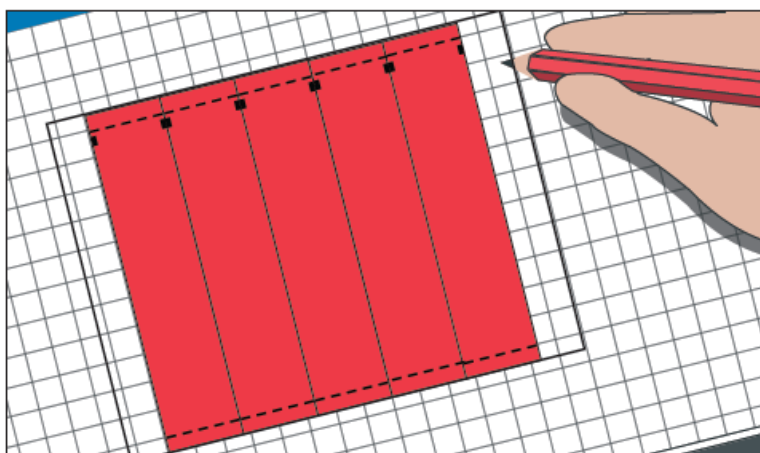
| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| This side up |
| Heating element must only be installed on top of concrete floor constructions (never on wooden floor construction), never inbedded in concrete. |
| Direct floor heating |
| The ECdry element may be cut here to fit the actual area, as there are no electrical parts in this area |
| The ECdry element can <u>NOT</u> be cut here as there are electrical parts in this area |
| For indoor use only |
| Read the instruction manual before installation |
| Double insulated |
| This symbol indicates that this product must not be disposed of with your other household waste. |
| Danfoss declares that ECdry is tested according to the standard EN/IEC 60335-2-96. Household and similar electrical appliances. Safety. Part 2-96. Particular requirements for flexible sheet heating mats for room heating. |

Designing the layout

Draw a floor plan of the room and determine the most logical location for the control system and the position of the floor heating mats. Consider the placement of the thermostat to get the most convenient access and make sure the necessary power supply is available.

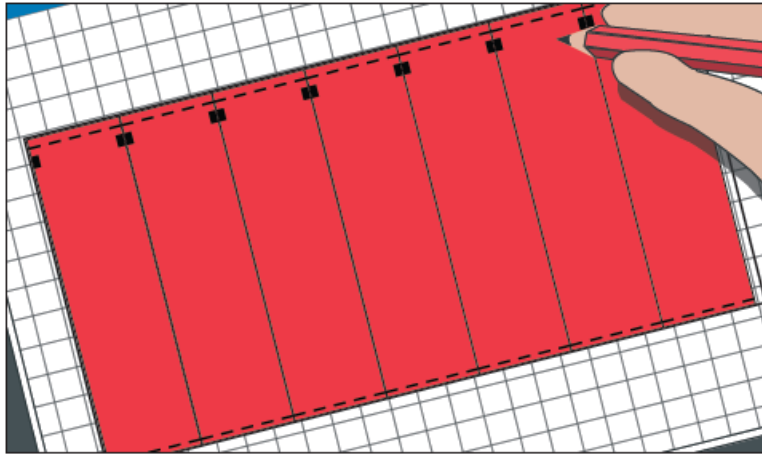
The output cord from the control system will go into the right side of the heating element, so you should start laying the first heat element on the right side of the floor and work towards the left side. Remember to keep at least 70 mm of free space between the skirting/wall and the first heating element for the plug-in connection between the floor heating element and the control system. Use the filler material to fill this space afterwards. Examples of calculations are provided below to help you work out how many ECdry floor heating mats are required. All ECdry floor heating mats are one metre wide and the standard length varies from one to five metres. Reduce the length of the elements to the required size as shown in the table.

Example 1: When the area is 5 m wide and 6 m long, you will need 5 × 5 m ECdry floor heating mats, plus 5 square metres of filler material.

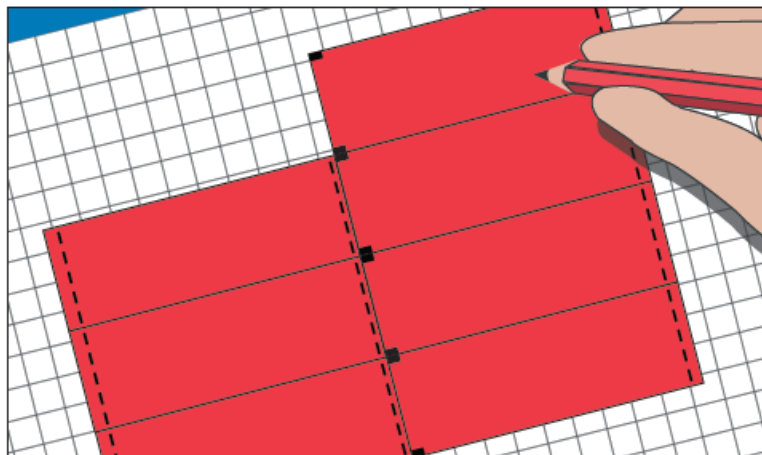


Example 2: When the area is 3.75 m wide and 7.10 m long, you will need 6 × 4 m ECdry floor heating mats. Cut the 4 m long elements down to 3.75 m. You will also need 0.38 square metres (buy 1 square metre) of filler

material. A ECdry floor heating extension cord is available as an accessory. Use the cord in the event that you are unable to make a direct connection between two adjacent floor heating elements or between the 1st mat and thermostat kit. The extension cords must only be placed in the filler material and not on top of the heating element. The extension cords can be extended with each other if necessary (if you need 3 m extension cords you can use 2 m + 1 m extension cords).



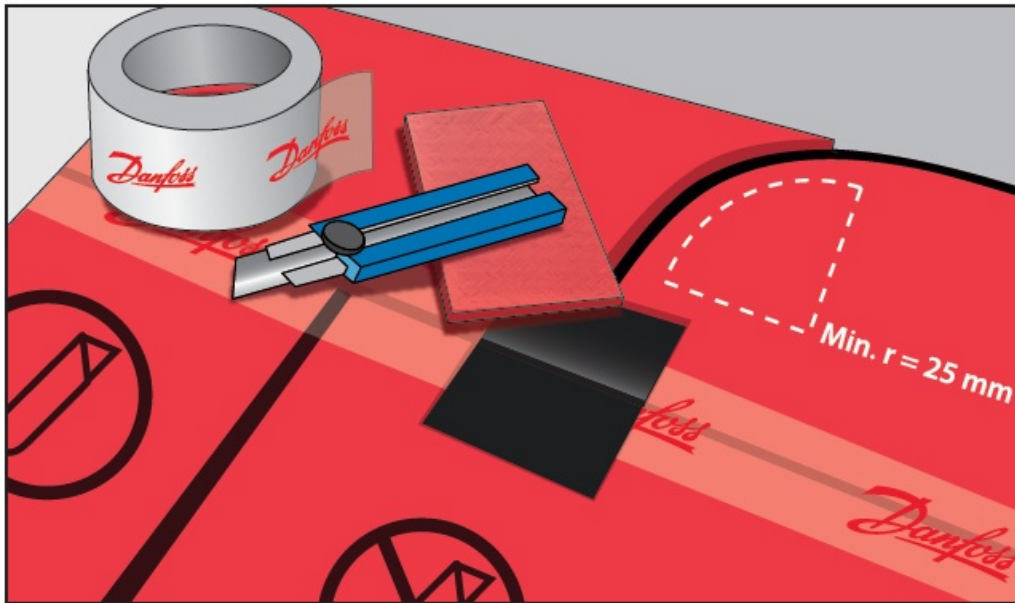
Example 3: When placing the elements after each other you should always cut away the cold end (25 cm) of the element to avoid cold zones.



Installing Supply Cord or Extension Cords:

The cords must only be placed in the filler material and not over/in the heating element.

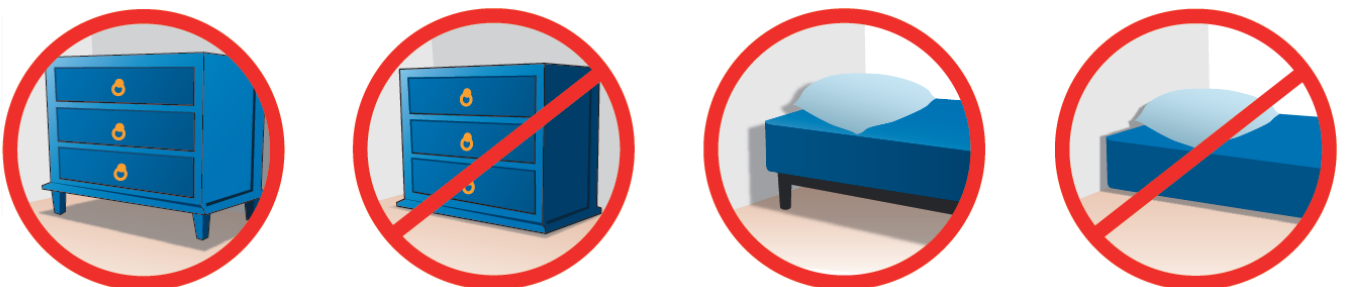
The filler material shall be cut so it envelopes the cords. The ECdry X can withstand maximum 10 A.



| Element size | Standard length | Minimum length |
|----------------------------------------------------------|-----------------|----------------|
| 1 m ² | 1 m | 0,5 m |
| 2 m ² | 2 m | 1,5 m |
| 3 m ² | 3 m | 2,5 m |
| 4 m ² | 4 m | 3,5 m |
| 5 m ² | 5 m | 4,5 m |
| 1 m wide filler materials without heating (1, 2 and 4 m) | | |

Make sure that no hot spots develop when using the floor heating system. Avoid hot spots by ensuring that the heat from the floor heating is homogeneously released to the area you wish to heat and that there is free space (ventilation) under the furniture.

When designing the layout, make sure not to install ECdry heating element under permanent or built-in cupboards or fire places/ovens. ECdry have to be separated from other heat sources such as chimneys. Instead ECdry filler material should be used.



Preparing the base

Before you start installing the product, please ensure that the floor is:

- Permanently inflexible
- Dry
- Flat and regular
- Dust- and fat-free

- Free from any sharp objects

Use a powerful vacuum cleaner to remove all dust from the floor.



Remember to install a 0,20 mm vapour barrier on the subfloor before rolling out the heating mats.

Calculating current limitations

The ECdry floor heating system should be connected in accordance with national standards and wiring rules. Maximum current per ECdry system is 10 Ampere.

In the following tables you will find maximum heated surface per ECdry Touch Kit and an overview of the total power output of the systems.

Maximum heated surface per ECdry Touch Kit (10 A limit per system)

| Product | Max heated surface |
|-----------|--------------------|
| ECdry 55 | 42 m ² |
| ECdry 100 | 23 m ² |

For ECdry 55 (Mains voltage 230 Volt and 50 Hz)

| Floor area | Heated surface | Total power output | Ampere |
|------------------|--------------------|--------------------|--------|
| 1 m ² | 0,4 m ² | 22 Watt | 0,10 A |
| 2 m ² | 1,4 m ² | 77 Watt | 0,33 A |
| 3 m ² | 2,4 m ² | 132 Watt | 0,57 A |
| 4 m ² | 3,4 m ² | 187 Watt | 0,81 A |
| 5 m ² | 4,4 m ² | 242 Watt | 1,05 A |

For ECdry 100

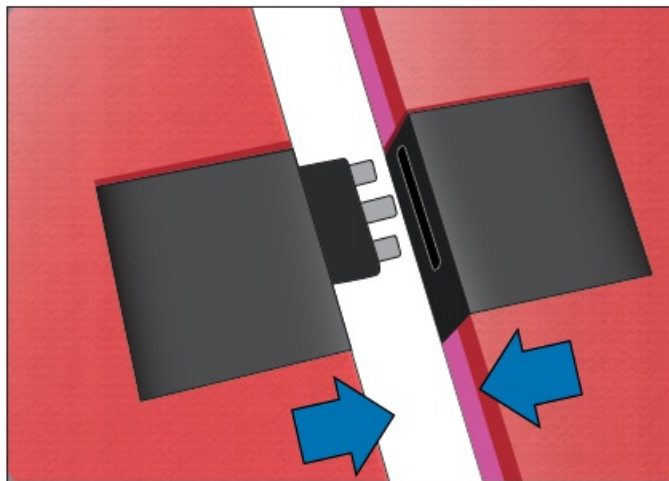
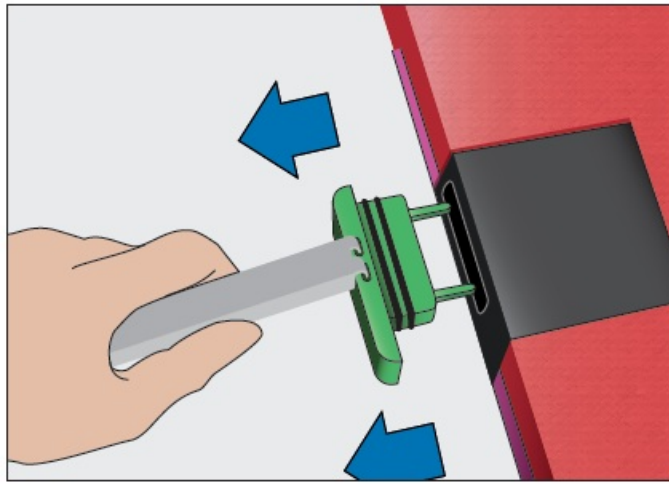
| Floor area | Heated surface | Total power output | Ampere |
|------------------|--------------------|--------------------|--------|
| 1 m ² | 0,4 m ² | 40 Watt | 0,17 A |
| 2 m ² | 1,4 m ² | 140 Watt | 0,61 A |
| 3 m ² | 2,4 m ² | 240 Watt | 1,04 A |
| 4 m ² | 3,4 m ² | 340 Watt | 1,48 A |
| 5 m ² | 4,4 m ² | 440 Watt | 1,91 A |

Connecting the ECdry elements

Bulges on the element may occur, but will disappear when the ECdry system is heated.

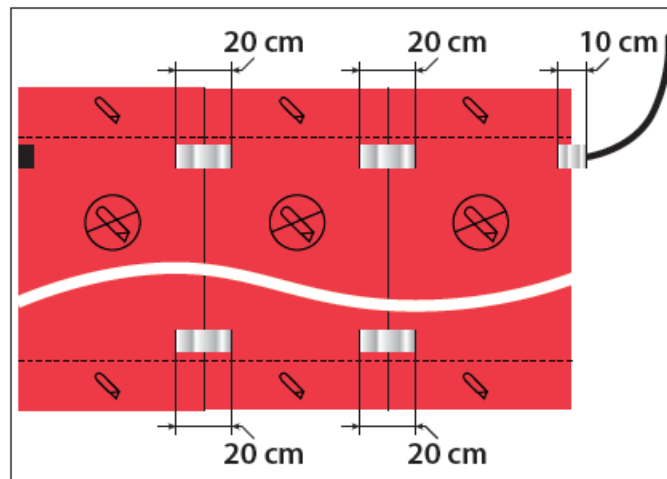
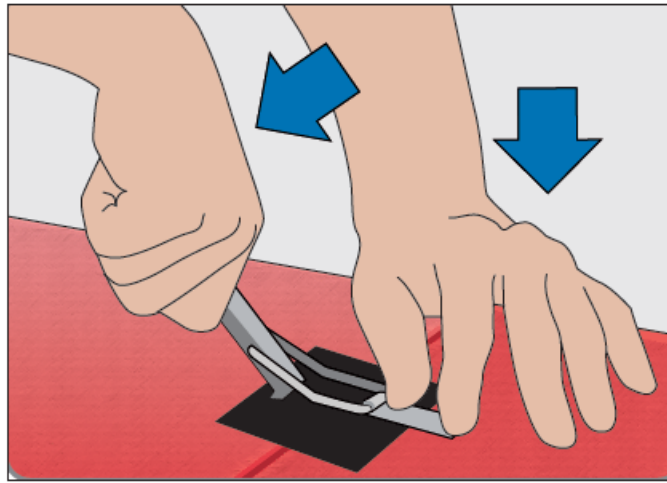
All elements are equipped with an end stop to insulate the connector and protect the connection against moisture. Remove the end stops with the special tool, just before making the connection with the next heat-ing mats. If all end stops are taken out at once, remember to leave the end stop in the last element.

Connect the plug-in connection of the second element into the plug-in connection of the first element. Put the male and female connector together by hand before using the connector tool to push the elements tight together. Check that the plug-in connection fits correctly and permanently. Continue with the subsequent elements in the same manner.





Make sure that all plug-in connections fit straight and without any mechanical stress. Discontinue the floor heating installation process in the event of damage to one or more components. Incorrect installation may cause problems and/or defects to the floor heating mats. Please take precautions not to drop sharp objects on the heating mats.

Use the enclosed aluminum tape to fix mats to each other in order to secure connections and to avoid movement of mats. Place aluminum tape in two positions: directly on connections (between mat connections and in the opposite end of the mat). In addition fix 1st mat connection and output cord from ECdry Touch Kit. Make sure that the end stop in the last element is in place before the floor covering is laid. Keep the end stops if you intend to remove/reposition your floor heating system later.



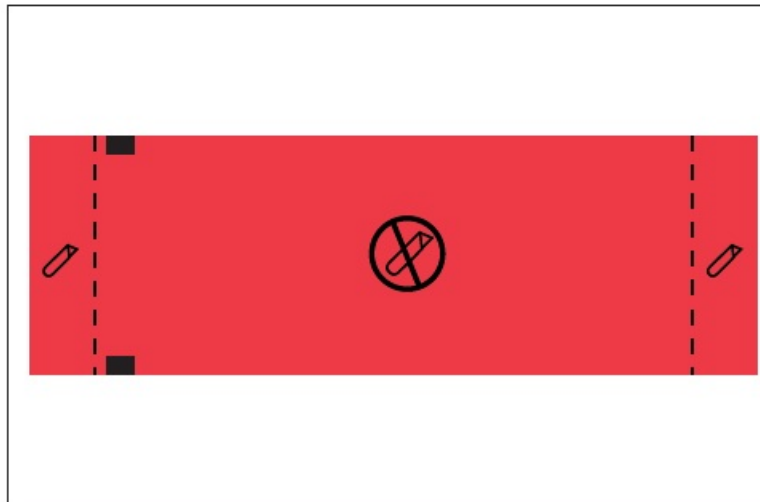
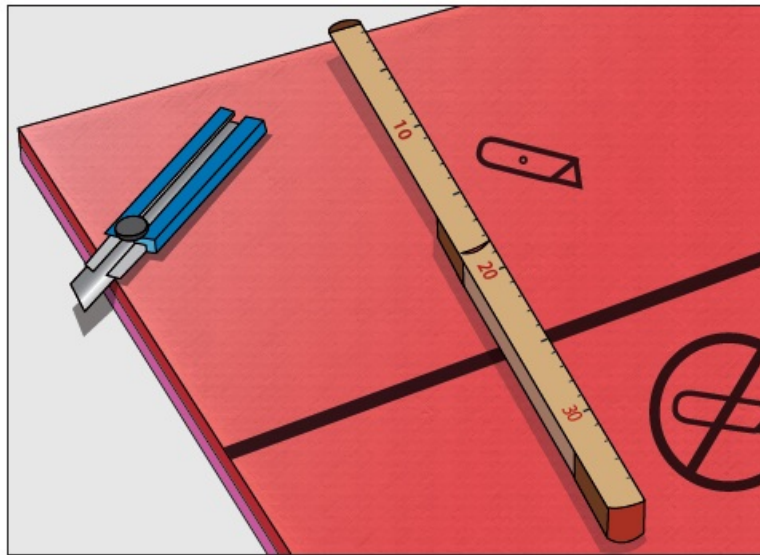
Cutting the ECdry floor heating element to size

Each end of the ECdry heating element consists of 25 cm without electrical parts inside. The ECdry heating element may only be cut at the far ends where there are no electrical parts inside as marked on the product below. Markings and symbols have been printed on the ECdry heating mats:

| | |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
|  | Cutting area |
|  | Do not cut area. Electrical parts inside. If cut, element will be destroyed. |

To cut the element to size:

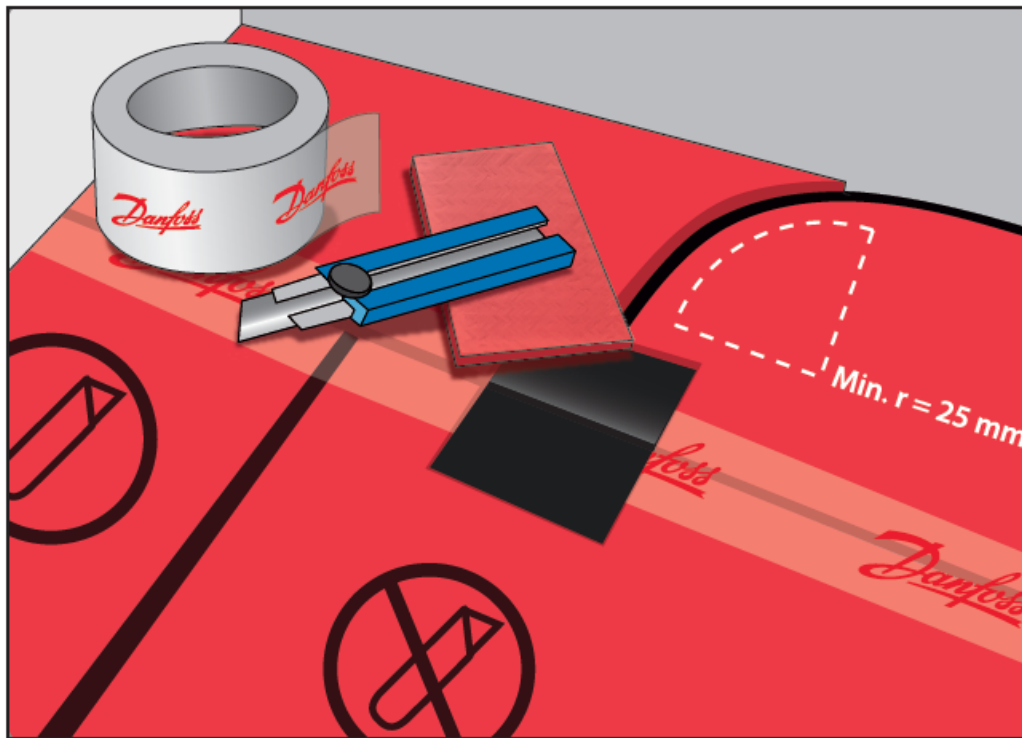
Carefully measure the piece you wish to cut off and simply cut with a sharp knife.



Filling up the remaining space

At this point all connections between the elements should be aligned and connected and as much of the floor as possible should be covered with ECdry elements. The space without ECdry heating mats should be covered with the ECdry Filler Material to ensure an even and homogenous floor surface.

A knife, a lineal (to cut along) and a wooden plate (behind the ECdry element) can be used when cutting the ECdry Filler Material to avoid cutting into the electrical parts and ensuring a straight cut.



To be certain that the distribution of the floor heating mats in your room is correct, we suggest you make everything fit before you secure the elements permanently. It is most important to make sure that all plug-in connections are perfectly aligned to allow the flow of electricity from one element to the next. Put the floor heating mats plus any filler materials down as shown in the layout. Once you have correctly positioned all floor heating mats and you have cut the filler material to size, you can proceed with the permanent installation as explained in the following steps.

Fit the output cord

Cut a piece of material from the filler material to embed the output cord between the ECdry Controller and the ECdry heating mat.

Mounting the ECtemp Thermostat

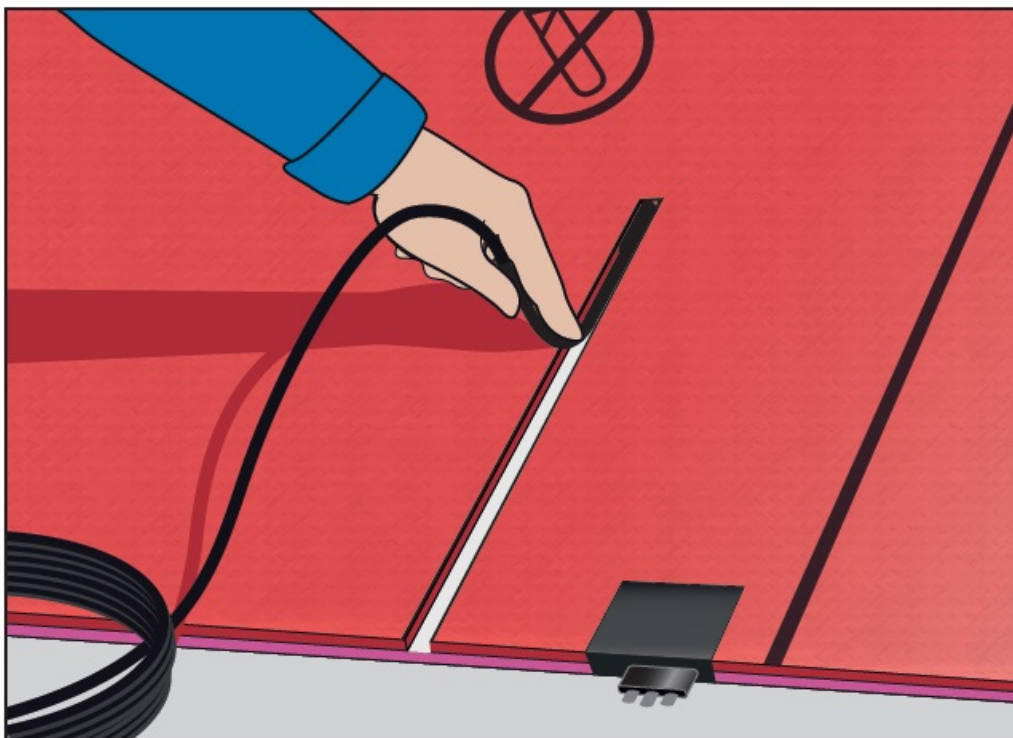
The electrical installation must be done by an authorised electrician. Mount the ECtemp thermostat to the wall. The ECtemp should be installed in accordance with the instruction manual supplied with the thermostat and the ECdry Touch Kit.

Cut a piece of material from the filler material to make room for the ECdry Supply Cord between the ECtemp thermostat and the ECdry Touch element.

Make sure not to fold and/or squeeze the cord between the thermostat and the floor heating element but make room for the cord in the filler material. Minimum bending diameter is 5 cm.

To place the sensor in the right spot, remove the cut-away area in the ECdry Touch heating element and place the sensor down into the groove.

Fix the sensor to the heating mat with the enclosed aluminium tape.



Checking the ECdry floor heating system

Check that all work has been carried out in accordance with directions before testing the ECdry floor heating system. Testing may commence when everything has been correctly connected. Read the directions for the control system before you proceed. Set the temperature at maximum 35 °C. After a short while you will notice the ECdry floor heating mats are warming up.

If the floor heating mats are not warming up to the same temperature, the plug-in connections should be checked once again. Remember to switch off the ECdry system before checking.

Laying the top floor

Please consult the floor manufacturer to ensure that the floor covering is suitable for floor heating. The final floor covering (laminated or parquet) can be laid when the ECdry heating system has been tested.

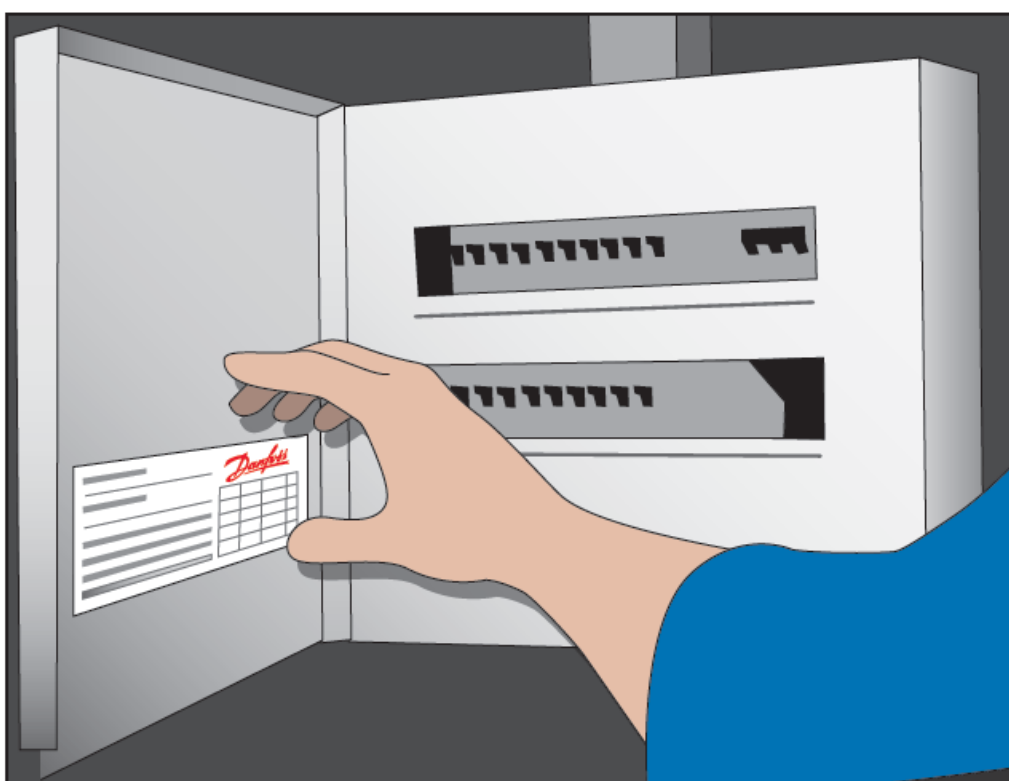
| | |
|-------------------------------------------------------------------------------------------------------|------------------|
| According to ISO 13732-2, the comfortable floor surface temperature depends on the flooring material. | Soft wood (pine) |
| | 22.5 – 28°C |
| | Hard wood (oak) |
| | 24.5 – 28°C |

However, observe the maximum floor surface temperature according to the flooring manufacturer. For most wooden floor products, the temperature is usually around 27 °C. All temperature settings must be set some degrees higher to compensate for the heat resistance in the top flooring.

| Thermal resistance [$\text{m}^2\text{K/W}$] | Examples of Flooring | Details | Approximate setting for 25° C floor temperature |
|-----------------------------------------------|--------------------------|-----------------------------|-------------------------------------------------|
| 0,07 | 11 mm HDF based laminate | > 800 kg/m ³ | 28°C |
| 0,10 | 14 mm beech parquet | 650 – 800 kg/m ³ | 31°C |
| 0,13 | 22 mm solid oak plank | > 800 kg/m ³ | 32°C |
| 0.18 | 22 mm solid fir planks | 450 – 650 kg/m ³ | 35°C |

Warning label

The warning label that is included in the ECdry Touch Kit must be filled out and placed in the distribution board. For future reference it is important to fill in, which room and how many ECdry elements that have been installed, by whom and the installation date. Furthermore, the room should be drawn in the manual so it is easy to see how the elements have been positioned in the room in the future. See layout paper on next page.



Layout paper

Please draw the room on the page below and position the heating mats that you are installing (for future reference)
These products are installed in Room

List of ECtemp thermostats

Use ECtemp with a maximum set point of 35 °C.

Use of other thermostat/setting will make the warranty void!

| ECtemp Touch | | | |
|---------------------|---------------------|-----------------------------|-----------------|
| Item no. | Product name | Type | Language |
| 088L0122* | ECtemp Touch | Pure white, RAL 9010 | 1 |
| 088L0128 | ECtemp Touch | Pure white, RAL 9010 | 2 |

Safety Precautions

- Use the floor heating element for the purposes described in the installation manual only.
- ECdry must always be installed with the ECdry Touch Kit.
- The ECdry floor heating system is to be supplied through a residual current device having a rated residual operating current not exceeding 30 mA.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- All the used ECdry elements must have the same area output.
- The ECdry elements are not to be installed on irregular surfaces.
- Bending diameter of the floor heating mats is 100 mm.
- ECdry heating element must be separated from other heat sources.
- Be careful not to separate or move the heating mats during installation.
- The ECdry heating element must not be installed at ambient temperatures below 5 °C.
- The ECdry floor heating system is only for indoor use.
- When storing the ECdry floor heating element keep it rolled as from factory or laying flat, never standing unrolled up against a wall/ in vertical position
- Do not install or use the floor heating system after one or more components have been damaged.
Do not allow home repairs under any circumstances. Repairs must be carried out by qualified electricians. Faulty repairs may cause personal injury or damage to property.
- Do not use the floor heating in combination with parts that are not recommended, installed or supplied by Danfoss.
- Use original parts of the ECdry floor heating system only. The warranty for the entire system and for the separate parts becomes null and void if parts from other manufactures have been used.
- Make sure that no hot spots develop when using the floor heating system. Avoid hot spots by ensuring that the heat from the floor heating is homogeneously released to the area you wish to heat. Do not install the floor heating element under permanent or built-in cupboards (min. 6 cm air).
- Do not use the ECdry floor heating system if the system is wet.
- Warning label should be filled out and placed next to the distribution switchboard.
- The ECdry floor heating system is only to be used with the ECdry extension cords (The ECdry X). Do never cut the extension cords.
- Do not buckle the supply cord and the extension cords; do not have them run across hot and/or sharp objects.
- Unroll the extension cords entirely to prevent the cords from overheating.
- Do not pull the cord or the floor heating element to undo a plug-in connection. Always use the connection tool.
- If the extension or supply cord is damaged, it must be replaced by the manufacturer, its service agent or similar persons in order to avoid a hazard.
- Connect the floor heating to 230 Volt and 50 Hz only.
- Do not allow needles, sharp objects, liquids and/or other electricity-conducting objects/fluids to make contact

with the floor heating system.

- The printed side of the heating element must be visible when placing the element showing the symbol: THIS SIDE UP
- Save the manual together with the warranty papers for further use.

The 5 Year Danfoss Warranty

A 5-year product warranty is valid for:
thermostats: ECdry Touch Kit

Should you, against all expectations, experience a problem with your Danfoss product, you will find that Danfoss offers Danfoss warranty valid from the date of purchase on the following conditions: During the warranty period Danfoss shall offer a new comparable product or repair the product if the product is found to be faulty by reason of defective design, materials or workmanship. The repair or replacement.

The decision to either repair or replace will be solely at the discretion of Danfoss. Danfoss shall not be liable for any consequential or incidental damages including, but not limited to, damages to property or extra utility expenses. No extension of the warranty period following repairs undertaken is granted.

The warranty shall be valid only if the WAR-RANTY CERTIFICATE is completed correctly and in accordance with the instructions, the fault is submitted to the installer or the seller without undue delay and proof of purchase is provided. Please note that the WARRANTY CERTIFICATE must be filled in, stamped and signed by the authorized installer performing the installation (Installation date must be indicated). After the installation is performed, store and keep the WARRANTY CERTIFICATE and purchase documents (invoice, receipt or similar) during the whole warranty period.

Danfoss warranty shall not cover any damage caused by incorrect conditions of use, incorrect installation or if installation has been carried out by non-authorized electricians. All work will be invoiced in full if Danfoss is required to inspect or repair faults that have arisen as a result of any of the above. The Danfoss warranty shall not extend to products which have not been paid in full. Danfoss will, at all times, provide a rapid and effective response to all complaints and inquiries from our customers.

The warranty explicitly excludes all claims exceeding the above conditions.

Documents / Resources

| | |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
|  | Danfoss ECdry Touch Kit [pdf] Installation Guide ECdry Touch Kit, ECdry, Touch Kit, Kit |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|

References

-  [Engineering Tomorrow | Danfoss](#)
- [User Manual](#)

Manuals+. Privacy Policy

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